

WISHA REGIONAL DIRECTIVE

WISHA Services

Department of Labor and Industries

11.05 LABORATORY HOOD VENTILATION SPECIFICATIONS IN PART F (CARCINOGENS) Date Issued: September 25, 1997

I. Background:

The current definition of "laboratory-type hood" found in the Carcinogens standard, WAC 296-62-07304(10), includes linear face velocity specifications of 125 lfm (minimum) and 150 lfm (average). More current information, which is reflected in the newer Hazardous Chemicals in Laboratories standard, WAC 296-62-40025(3)(c)(iv)(B), indicates that these air-flow specifications are excessive and may be hazardous since they can lead to chemical exposures caused by increased air turbulence at the hood face. This problem is recognized indirectly in the lab standard through an appendix reference to page 203 of *Prudent Practices for Handling Hazardous Chemicals in Laboratories*, which states:

If the hood and the general ventilating system are properly designed, face velocities in the range of 60-100 lfm will provide liminar flow of air over the floor and sides of the hood. Higher face velocities (125 lfm or more), which exhaust the general laboratory air at a greater rate, are both wasteful of energy and likely to degrade hood performance by creating air turbulence at the hood face and within the hood. Such air turbulence can cause the vapors within the hood to spill out into the general laboratory atmosphere.

Another credible reference source, the American Conference of Governmental Industrial Hygienist's *Industrial Ventilation: A Manual of Recommended Practice* (21st ed.) recommends 80-100 lfm (or 80-100 cfm/ft²) as an acceptable operational range for typical laboratory hoods (see page 10-39) and states on page 10-36 that, "higher face velocities do not result in greater protection as might be supposed."

II. Scope and Application:

This WISHA Regional Directive, which will remain in effect indefinitely, provides guidance to WISHA consultation and compliance staff in the proper application of WAC 296-62-073. This WRD incorporates the substance of WISHA Interim Interpretive Memorandum #96-11-E, which is hereby rescinded.

III. Interpretive Guidance:

- A. How should the Carcinogens standard be applied to laboratory-type hoods that employ the recommended face velocities?

Employers who are covered by the Carcinogens standard (WAC 296-62-073) *and* who are following the appropriate guidance in *Prudent Practices for Handling Hazardous Chemicals in Laboratories*, are not subject to citation if their laboratory-type hood/s do not conform to the face velocity specifications listed in WAC 296-62-07304(10). In such circumstances, any violation of the face velocity requirements is clearly *de minimis* and therefore must not be cited.

- B. How should the Carcinogens standard be applied to laboratory-type hoods when employers comply with the strict language of the standard regarding required face velocities?

Employers cannot be cited for complying with the outdated face velocity specifications found in WAC 296-62-07304(10) (however, WISHA staff should advise the employer, in the form of a citation message or other similar means, that employee protection may be enhanced by employing a lower face velocity in accordance with *Prudent Practices for Handling Hazardous Chemicals in Laboratories*).

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